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United States Patent [19]**Harris**[11] **Patent Number:** **5,593,091**[45] **Date of Patent:** **Jan. 14, 1997**[54] **DUAL SOLUTION APPLICATION SYSTEM**[75] **Inventor:** **Robert D. Harris**, Logan, Utah[73] **Assignee:** **Harris Research, Inc.**, Logan, Utah[21] **Appl. No.:** **335,210**[22] **Filed:** **Nov. 7, 1994**[51] **Int. Cl.⁶** **B05B 7/26**[52] **U.S. Cl.** **239/127; 239/131; 239/304;**
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146.02, 146; 15/321, 322[56] **References Cited****U.S. PATENT DOCUMENTS**

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[57]

ABSTRACT

A system for the mixing of two or more interacting heated solutions and the simultaneous application of the mixed interacting solutions to a fabric surface. The system is made up of a mobile supply base and an elongate applicator having a valved mixing chamber at the proximal end and a fluid distributing manifold at the distal end. The mobile supply base houses multiple containers, each adapted for holding and heating solutions to a desired temperature. The supply base also contains one or more pumps for the delivery of solutions from each container through interconnecting lines to the valved mixing chamber at the proximal end of the applicator. The applicator is an elongated support structure such as a wand. At the proximal end of the applicator, the valved mixing chamber is configured to receive and meter solutions from the supply base through the interconnecting lines into a mixing chamber maintained at substantially ambient pressure. An outflow line connects the mixing chamber with the distribution manifold. The solutions mix and interact in the mixing chamber and the mixed solutions pass through the outflow line to the distribution manifold at the distal end of the applicator. The system is preferably adapted for the mixing of hot carbonate salt and organic acid solutions resulting in the production of a hot carbonating solution in the mixing chamber and the delivery of the carbonating solution through the distribution manifold onto a fabric surface.

14 Claims, 3 Drawing Sheets